

Exercise 3

How many genes expressed in the liver are between base 12000000 and 14000000 of human chromosome 10? How many microsatellites? How many SNPs?

[Hint: to answer to all questions, you have to use at least 2 different web sites]

Exercise 4

You have the following sequences, from human samples

A

AATCCACACAGCTGACTGGCCCAGGCTCTCAGGATCACCCGTGTGTTTCAC
CCATGTATTGTTGTCAAACAAAGTACTGATGGCTTCGCGGGGCATCAACTC
TCCAGCCATGAATTG

B

AATCCACACAGCTGACTGGCCCAGGCTCTCAGGATCACCCGCGTGTTTCA
CCCATGTATTGTTGTCAAACAAAGTACTGATGGCTTCGCGGGGCATCAACT
CTCCAGCCATGCATTG

C

AATCCACACAGCTGACTGGCCCAGGCTCTCAGGATCACCCGCGTGTTTCA
CTCATGTATTGTTGTCAAACAAAGTACTGATGGCTTCGCGGGGCATCAACT
CTCCAGCCATGAATTG

D

AATCCACACAGCTGACTGGCCCAGGCTCTCAGGATCACCCGCGTGTTTCA
CCCTTGTATTGTTGTCAAACAAAGTACTGATGGCTTCGCGGGGCATCAACT
CTCCAGCCATGAATTG

Q1: Is this genomic sequence or cDNA (sequence from a transcript)?

Q2: What gene these sequences belong to?

Q3: Is this gene a "disease-gene"?

Q4: These 4 sequences are not identical. Where do they differ?

Q5: Can you describe the type of DNA change for each of these sequences?

BONUS QUESTION

What are the chromosome coordinates of these sequences?

Exercise 5

Select the NCBI's reference sequence for the CFTR transcript (human, NM_XXXXX). Using ORF finder (NCBI tools), find the predicted ORF on this sequence and check whether the proposed ORF corresponds to the official ORF (e.g. the ORF reported in Ensembl).